

# GEOGRAPHICAL DISPERSION OF RENIFORM NEMATODE IN LOUISIANA

C. Overstreet

Extension Nematologist

E. C. McGawley

Research Nematologist

LSU Agricultural Center

Baton Rouge, LA

## Abstract

Reniform nematode was found to have a high incidence of occurrence in central and northeast Louisiana. This nematode was shown to be spreading in a number of parishes based on changes in the percent occurrence over time. The percent of reniform nematode from Franklin, Richland, Ouachita, Morehouse, and Caldwell parishes went from 2.5-52.7, 3.6-60.3, 0.8-17.9, 3.1-35.0, and 21.7-57.3%, respectively, during the past 19 years.

## Introduction

Smith and Taylor first identified the reniform nematode as a nematode pest of cotton in Louisiana in 1941. Since that time, it has been found as a widespread pest throughout much of this state. The first estimate of acres infested by this nematode was by Birchfield and Jones in 1961 who reported 2000-5000 acres of cotton in Louisiana with this nematode. Overstreet and McGawley (1996) estimated 510,000 acres with this nematode based on surveys conducted during 1994-95. Although there is speculation that the nematode may be spreading into new regions, there is no evidence to substantiate increased spread by this nematode. This study was initiated to examine existing data from the Nematode Advisory Service for the past 19 years to look for evidence of increased spread by reniform nematode. All of the samples with reniform nematode present were identified and sorted by parish and year. Incidence for the nematode was reported as a cumulative total over time and grouped (1980-85, 1980-90, 1980-95, and 1980-98) for each parish. Samples with reniform nematode were expressed as a percent of the total samples to evaluate changes over time in each parish.

## Discussion

Reniform nematode was found in 36% of all samples processed (22,927) and in 53 of the 64 parishes in Louisiana.

However, within individual parishes, incidence (0-3074 fields) and percent of samples with reniform nematode (0-78%) varied considerably (Figures 1-4). A number of parishes showed an increase in the percent of samples with reniform nematode over time, indicating additional spread by

this nematode (Figures 5-8). Morehouse (Figure 9) and Caldwell (Figure 10) parishes had an increased frequency of reniform nematode occurring over time in samples coming from these parishes. Richland (Figure 11) and Franklin (Figure 12) parishes showed the greatest increases by this nematode (3.6% and 2.5% during the first 6 years to 60.3% and 52.7% after 20 years, respectively). The greatest increase in reniform nematode occurred within major cotton-production areas, suggesting cotton production practices as a likely reason for spread by this nematode. Cotton is likely to continue being an important factor in the further dispersal of this nematode.

## Literature Cited

Birchfield, W. and J.E. Jones. 1961. Distribution of the reniform nematode in relation to crop failure of cotton in Louisiana. *Plant Disease Reporter* 45:671-673.

Overstreet, C. and E.C. McGawley. 1996. Current incidence of plant-parasitic nematodes in Louisiana. *Beltwide Cotton Conference Proceeding Volume 1:252-253*.

Smith, A.L. and A.L. Taylor. 1941. Nematode distribution in the 1940 regional cotton wilt plots. *Phytopathology* 31:771.

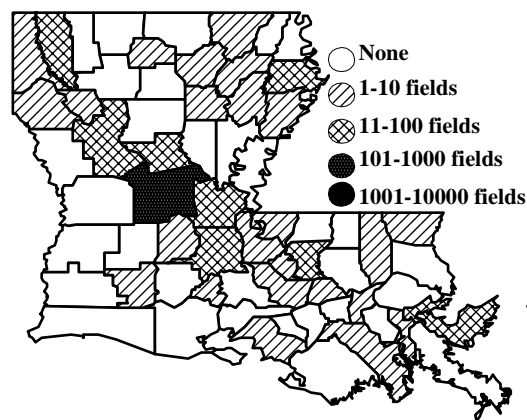


Figure 1. Incidence of reniform nematode in Louisiana during 1980-85.

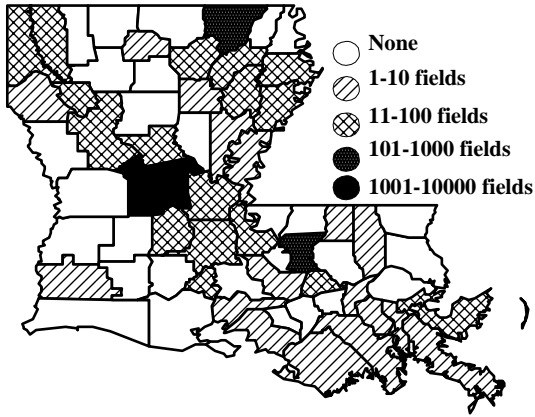


Figure 2. Incidence of reniform nematode in Louisiana during 1980-90.

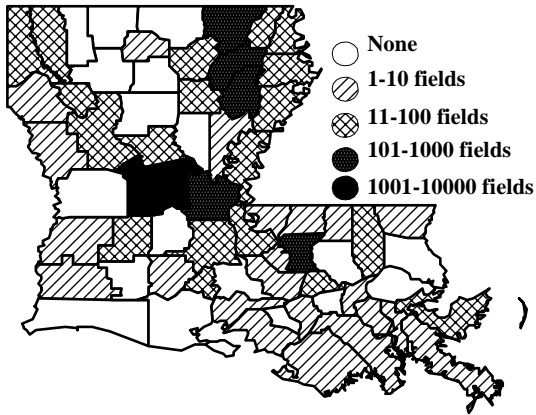


Figure 3. Incidence of reniform nematode in Louisiana during 1980-95.

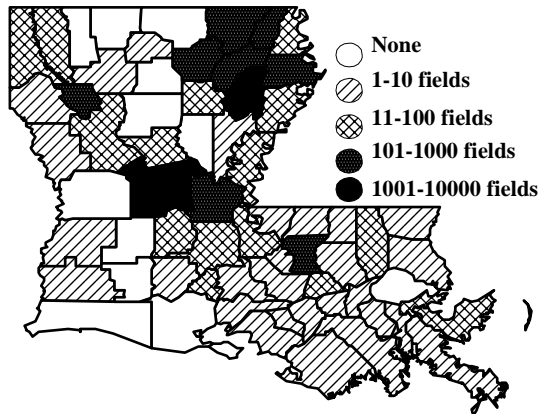


Figure 4. Incidence of reniform nematode in Louisiana during 1980-98.

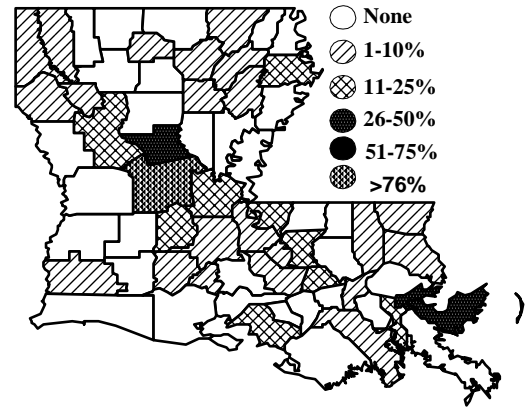


Figure 5. Reniform nematode as a percentage of the total samples in each parish during 1980-85.

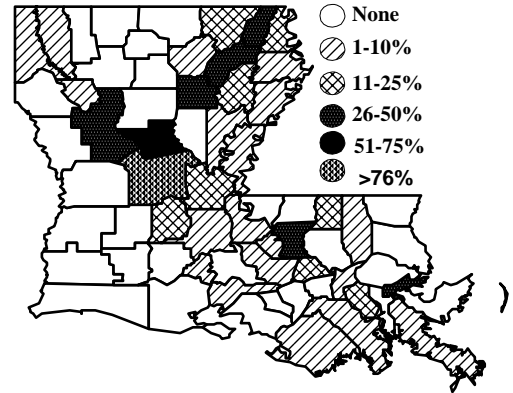


Figure 6. Reniform nematode as a percentage of the total samples in each parish during 1980-90.

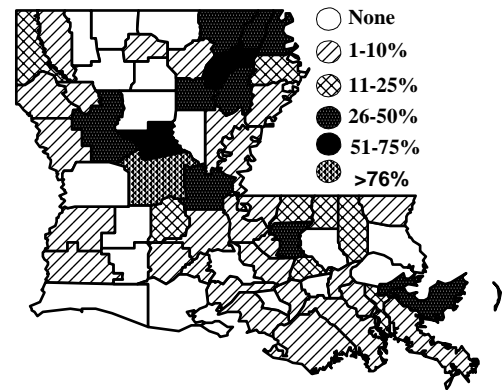


Figure 7. Reniform nematode as a percentage of total samples for each parish during 1980-95.

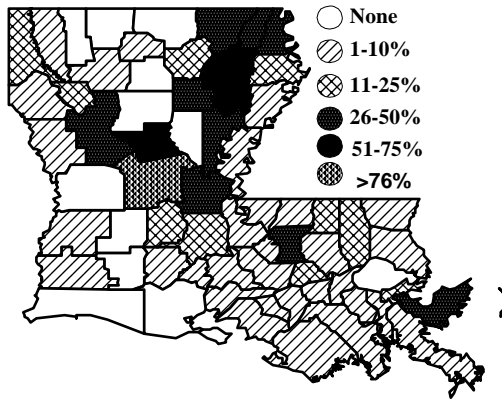


Figure 8. Reniform nematode as a percentage of total samples for each parish during 1980-98.

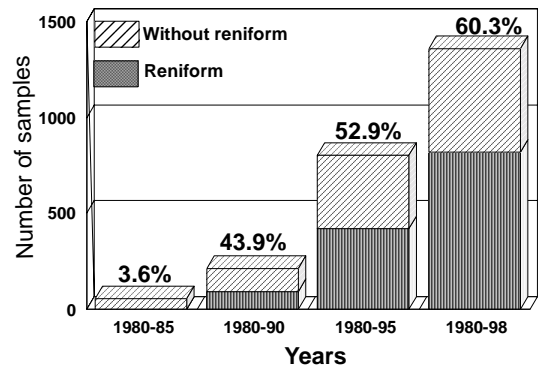


Figure 11. The percent change in reniform nematode over time in Richland parish during the past 20 years.

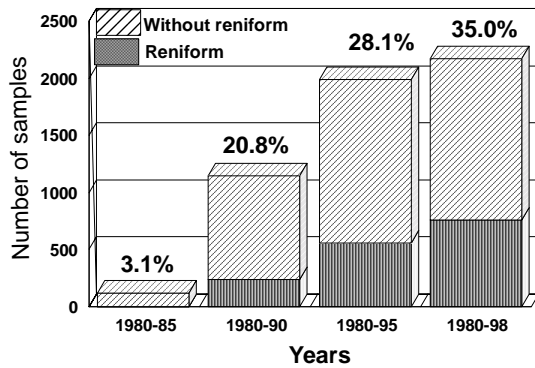


Figure 9. The percent change in reniform nematode over time in Morehouse parish during the past 20 years.

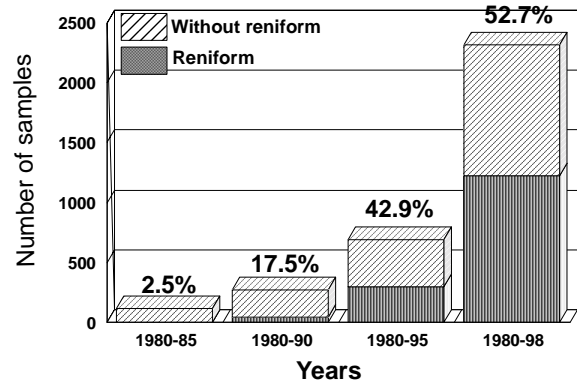


Figure 12. The percent change in reniform nematode over time in Franklin parish during the past 20 years.

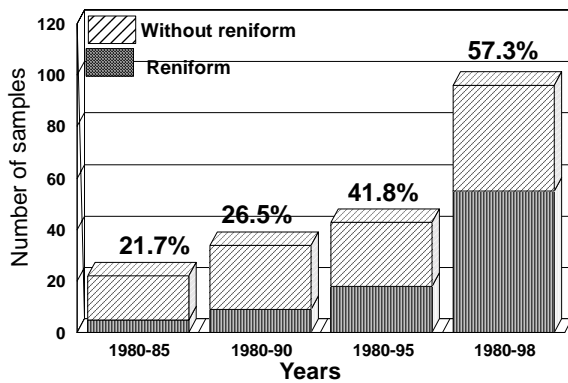


Figure 10. The percent change in reniform nematode over time in Caldwell parish during the past 20 years.